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Abstract Category: 2. Clinical Female Infertility and Gynecology (GPC)
Abstract Topic: 9. Endometriosis
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Are you a fellow in training in an American Board of Obstetrics and Gynecology approved program leading to certification in Reproductive Endocrinology and Infertility? No
Data is submitted for a separate scientific abstract and video presentation: No

Awards:
Resident In-Training
SRS In-Training Award for Research

IRB Approval: The study material in this abstract has been approved by the local Institutional Review Board (IRB) if any human subjects or any human material was utilized.

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Accept Complete Responsibility: I accept complete responsibility for the data at the time of submission.

Title: CORRELATION BETWEEN DNA DAMAGE OF OOCYTES INCUBATED IN THE PERITONEAL FLUID OF ENDOMETRIOSIS, STAGE OF DISEASE AND DURATION OF INFERTILITY
Objective: The objective of this study was to correlate the DNA damage of oocytes incubated in the peritoneal fluid of endometriosis with the stage of the disease and duration of infertility

Design: Prospective controlled in vitro study

Materials and Methods: 300 Mature frozen metaphase II mouse oocytes were divided into four groups. Group I: 87 oocytes incubated in the PF of patients with mild endometriosis; group II: 93 oocytes incubated in the PF of patients with severe endometriosis; group III: 90 oocytes incubated in the PF of non-endometriosis patients; i.e. tubal ligation/ reversal (controls) and group IV: 30 oocytes incubated in HTF. Oocytes were divided equally and incubated for 30 min, 1.5 and 4 h. Oocytes were fixed and TUNEL staining was done for DNA damage and oocytes were examined by fluorescent microscopy. TUNEL positive staining indicated damaged DNA, while weakly positive or negative indicated no damage.

Results: Oocytes that were incubated in PF of patients with endometriosis showed significantly more DNA damage compared with control at 1.5 and 4 h (p<0.001 respectively). Oocytes incubated in PF from patients with severe endometriosis showed more damage compared with mild endometriosis patients at all time points (p<0.001 respectively). Duration of infertility was associated with the degree of damage 44% (0 - 2y) 76% (3 - 4y), and 100% damage at 5+ y of infertility respectively after 4 h incubation (p = 0.022 and 0.006 for 0 - 2 y vs. 3-4 y and 5+ y respectively). Mild or severe damage was observed in all oocytes at 4 h

<table>
<thead>
<tr>
<th>Incubation</th>
<th>Control HTF</th>
<th>Control Tubal</th>
<th>Endometriosis</th>
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</thead>
<tbody>
<tr>
<td>30 min</td>
<td>9 (90.0%)</td>
<td>26 (86.7%)</td>
<td>48 (80.0%)</td>
</tr>
<tr>
<td></td>
<td>1 (10.0%)</td>
<td>4 (13.3%)</td>
<td>7 (11.7%)</td>
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<tr>
<td></td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>5 (8.3%)</td>
</tr>
<tr>
<td>1.5 hours</td>
<td>9 (90.0%)</td>
<td>27 (90.0%)</td>
<td>9 (15.0%)</td>
</tr>
<tr>
<td></td>
<td>1 (10.0%)</td>
<td>3 (10.0%)</td>
<td>15 (25.0%)</td>
</tr>
<tr>
<td></td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>36 (60.0%)</td>
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<tr>
<td>4 hours</td>
<td>9 (90.0%)</td>
<td>24 (80.0%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td></td>
<td>1 (10.0%)</td>
<td>6 (20.0%)</td>
<td>21 (35.0%)</td>
</tr>
<tr>
<td></td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>39 (65.0%)</td>
</tr>
</tbody>
</table>

Conclusions: The extent of DNA damage depends on the duration the oocytes are exposed to the peritoneal fluid. This may lead to failure of fertilization or embryonic development. Stage of endometriosis affects the oocyte quality. Selecting oocytes that are most likely to develop is crucial for in vitro fertilization in management of endometriosis related infertility.

Support: None.
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